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NOTES ON GEOGRAPHIC DISTRIBUTION

The occurrence of *Eptesicus chiriquinus* Thomas, 1920 (Chiroptera: Vespertilionidae) in the Brazilian Atlantic Forest with comments on the species' distribution

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ABSTRACT: This study provides a second recording of the bat *Eptesicus chiriquinus* (Chiroptera: Vespertilionidae) for the Atlantic Forest biome in Brazil. A specimen was captured in a native forest near the Contas River in the District of Taboquinhas, municipality of Itacaré, in southern Bahia. In Brazil, this species had sparse known records, although it is previously considered endemic to the Amazon region and the States of Amazonas and Pará. Recently, this species was recorded in the Atlantic Forest of southeastern Brazil. This present record extends over a 1000 km northeast distribution of this species in Brazil.

The Eptesicini tribe (Vespertilionidae) consists of three genera, among which *Eptesicus* is the most diverse, with 24 species distributed throughout the globe (Simmons 2005; Miranda *et al.* 2006; IUCN 2012). Six out of these 24 species are present in Brazil, including one endemic species recently described (*Eptesicus taddeii* Miranda, Bernardi and Passos 2006) that occurs in the South and Southeast of Brazil (Miranda *et al.* 2006; Passos *et al.* 2010).

Eptesicus chiriquinus is part of the *Eptesicus* long-fur group. The species was first described by Thomas (1920) based on a specimen from Cerro Chiriquí in Panama, and the validity of the taxon was widely discussed by Simmons and Voss (1998). *Eptesicus chiriquinus* is currently known to occur in Mexico, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Venezuela, Guyana, French Guiana, and Brazil (Davis and Gardner 2008), although the occurrence in Costa Rica is unconfirmed (see Molinari *et al.* 2008). The records in Brazil are scarce and include the Amazon biome in the States of Amazonas (Simmons and Voss 1998; Sampaio *et al.* 2003) and Pará (Kalko and Handley 2001; Bernard and Fenton 2002), and the Atlantic Forest of Minas Gerais (Gregorin and Loureiro 2011) (Figure 1).

Simmons and Voss (1998) examined two specimens from the American Museum of Natural History (AMNH 92251 and 93787) that had been included in the *andinus* group by Davis (1966). They considered those specimens as *E. chiriquinus* and corrected the locality information of the specimens as *Amazonas, Rio Madeira,* and *Santo Antonio do Guajará* [*ca. 25 m*]. According to Davis and Gardner (2008), Santo Antônio do Guajará is located in the state of Amazonas with the following coordinates 06°42' S, 69°52' W. Another record of *E. chiriquinus* in the State of Amazonas was reported by Sampaio et al. (2003) for an experimental research area located 80 km from Manaus (Km 41, The Biological Dynamics of Forest Fragments Project). There are two records of *E. chiriquinus* for the State of Pará; one of which was provided by Kalko and Handley (2001) in a Research Area in Guamá, on the outskirts of the capital Belém. The other record was provided by Bernard and Fenton (2002) through the capture of a single individual in an enclave of Cerrado, in the Tapajós region, in the municipality of Alter do Chão. Recently, the species was recorded for the first time in the Atlantic Forest in southeastern Brazil (Gregorin and Loureiro 2011).

There is still a probable record of *E. chiriquinus* in the state of Amapá in the extreme northern area of Brazil, based on a specimen reported as *Eptesicus* sp. by Piccinini (1974), which originated from the community of Vila Velha do Cassiporé, in the municipality of Oiapoque, and was referenced as a probable *E. chiriquinus* by Martins *et al.* (2011).

Eptesicus chiriquinus can be separated from its congener species by a series of external and cranial characteristics, such as its relative large size (forearm > 42 mm), dark and long dorsal hairs (> 8 mm) with an oily aspect in living individuals (Figure 2), bicolored ventral fur (with the tip showing a lighter color than the base), well-developed sagittal and nuchal crests, a non-laterally inflated rostrum, a high non-flattened braincase, and a well-defined dish-shaped facial profile (Simmons and Voss 1998).

In this study we report an increase in the distribution area of *E. chiriquinus*. This record was based on a specimen captured in August 2011, in a rapid bat inventory in the region of Taboquinhas, district of the municipality of Itacaré in southern Bahia. The specimen corresponds to a dark-colored adult male captured in a mist net set up at ground level (0–3 m) in a fragment of the Atlantic Forest at about 400 m from the left bank of the Contas River (14°20'46" S and 39°10'43" W, meters above sea level; SISBIO-collection license number: 232611). The voucher specimen was deposited in the zoology collection of the Jataí Campus of the Federal University of Goiás under

number CJ 565 and is available for further study.

The following measurements were taken on the specimen: Forearm length = from the elbow (tip of the olecranon process) to the wrist (including the carpals); Total length = from the tip of the snout to the tip of the last caudal vertebra; Tail length = from the point of dorsal flexure of the tail with the sacrum to the tip of the last caudal vertebra; Foot length = from the anterior edge of the base of the calcar to the tip of the claw of the longest toe; Tibia length = from the proximal end of the tibia to the posterior base of the calcar; Ear length = from the notch to the fleshy tip of the pinna; Greatest length of skull = from the posterior-most point of the occiput to the anterior-most point of the premaxillae (excluding incisors); Condyloincisive length = from the most posterior point on the occipital condyles to the most anterior point on the upper incisors; Postorbital breadth = least breadth across the frontals posterior to the postorbital; Braincase breadth = greatest breadth of the braincase, excluding mastoid and paraoccipital processes; Mastoid breadth = greatest cranial breadth across the mastoid region; Maxillary toothrow = from the most anterior edge of the canine crown to the most posterior edge of the crown of M3; Breadth across molars = greatest breadth across the outer edges of the crowns of the upper molars.

These measurements are within the range observed in specimens of *Eptesicus chiriquinus* from the north, and are closer to those of smaller individuals in general. Table 1 presents the measurements of the specimen analyzed in this study, compared with measurements from males compiled by Simmons and Voss (1998) from various localities. Additionally, the specimen fits the characteristics attributed to *E. chiriquinus:* ventral fur with the first basal 2/3 blackened, and cinnamon colored tips, dorsal hairs long and silky with an oily aspect, and a dark and well-inflated rostrum.

Until now, four species of *Eptesicus* were known to occur in the Atlantic Forest: *E. brasiliensis*, *E. diminutus, E. furinalis,* and *E. taddeii*, the latter apparently restricted to this biome (Miranda *et al.* 2006; Passos *et al.* 2010). With this new record, the Atlantic Forest biome harbors at least five of the eight species of the genus that occur in South America. Figure 1 shows the records for *Eptesicus chiriquinus* in Brazil.

The new record of *E. chiriquinus* reported in the present study consists of the second for the Atlantic Forest biome, and considerably increases by 1,000 km the area of distribution of the species in northeastern Brazil.

Figure 1. Distribution of *Eptesicus chiriquinus* in Brazil. 1. Santo Antônio do Guajará, Amazonas state (Simmons and Voss 1998); 2. Manaus, Amazonas state (Sampaio et al. 2003); 3. Santarém, Pará state (Bernard and Fenton 2002); 4. Belém, Pará state (Kalko and Handley 2001); 5. Lavras, Minas Gerais state (Gregorin and Loureiro 2011); (?) possible occurrence Oiapoque, Amapá state (Piccinini 1974; Martins et al. 2011); Present Study: Itacaré, Bahia. The Brazilian biomes are designated by different colors.

Figure 2. Ventral and dorsal aspects of *E. chiriquinus* (CJ 565) from the Atlantic Forest. The ventral hairs present a cinnamon color at the tips, giving an orange-like shade to the specimen, whereas the dorsal hair is long and blackened.

Table 1. Dimensions of the *Eptesicus chiriquinus* specimen (male) recorded in the present study, and those provided for males of this species by Simmons and Voss (1998).

CHARACTERS	1 MALE – CJ 565 (BAHIA; THIS STUDY)	MALES FROM SEVERAL LOCALITIES* (MEAN, RANGE, AND NUMBER OF SPECIMENS)
Weight	10	10.7 (9.0–14.0) 7
Forearm	42.62	45.0 (42.5–48.3) 24
Total length	96.43	102.9 (93.0–111.0) 24
Tail length	40.50	43.2 (36.0–48.0) 24
Foot length	9.87	10.4 (9.0–13.0) 24
Ear length	12.70	13.9 (12.0–16.0) 21
Greatest length of skull	16.17	16.52 (16.04–17.52) 22
Condyloincisive length	15.72	16.30 (15.94–17.05) 22
Postorbital breadth	4.22	4.01 (3.72–4.17) 9
Braincase breadth	7.74	7.92 (7.30–8.50) 22
Mastoid breadth	8.85	8.72 (8.41–9.19) 23
Maxillary toothrow	6.53	6.47 (6.22–6.90) 23
Breadth across molars	7.48	7.09 (6.76–7.57) 23

* See Simmons and Voss (1998) for a list of localities.

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